FINAL REPORT

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ECONOMIC AND ENVIRONMENTAL VIABILITY OF ELK GRAZING ON NATIVE PASTURE

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Economic and Environmental Viability of Elk Grazing on Native Pasture. 19970147

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Conclusions:

Extreme environmental conditions during the past five years have posed the largest difficulty in conducting this study. Initial dry weather in 1998 and 1999 made establishing the native grasses in the paddock a challenge. The summer of 2000 allowed a year of meaningful data to be collected, but further drought in 2001 and severely dry summer of 2002 further complicated collecting environmental and economic data. As a result making meaningful conclusions would also be difficult. The best that one can derive from this study is a number of observations that may lead to a better study attempt.

1. Based on one year of data, it appears that animals grazing on the native pasture have a decreased weight gain compared to animals on grazing on traditional tame pasture.

2. The native grass species that were seeded seems to be performing well under the grazing pressure of the elk. The number and the density of the native grasses had increased each year of the study. These results indicate that elk can be successfully grazed with native species without harm to the pasture.

3. The native species appeared to survive extreme growing conditions better than tame forage species. The native grass paddock was the only paddock to survive the drought of 2002.

Table 1. List of native plant species used in this study.

Green needlegrass	*Stipa viridula*
Northern wheatgrass	*Agropyron dasystachyum*
Western wheatgrass	*Agropyron smithii*
Cicer milkvetch	*Astralagus cicer*
June grass	*Koleria cristata*
Plains Rough Fescue	*Festuca halii*

Table 2. Species inventory and biomass from 1998 to 2000.

	1998		1999		2000	
	Native	Tame	Native	Tame	Native	Tame
Native Species						
Northern Wheatgrass	19.0	1.4	14.8		170.5	
Western Wheatgrass	9.9	31.6	4.2		83.3	
Crested Wheatgrass	1.2					
Rough fescue	0.4	1.7				
June grass 0.1		2.4				
American Dragonhead	3.6		0.2			
Cicer milkvetch	3.1		0.6			
Tame Species and Weeds						
Quackgrass	26.6	1.7	1.1		1.1	
Smooth Brome	4.2	4.8	0.7		11.3	
Green foxtail	5.4				12.4	
Shepherd's purse	0.1					
Stinkweed	454.6		36.5		61.1	
Dandelion	1.0	7.6	0.2		1.8	
Narrow-leaved hawk's beard	3.3		3.3		1.1	
% weeds (% area)	77%	85%	14%		52%	
% native species (% area)	23%	15%	31%		48%	
biomass (kg/sqm)	0.16	0.22			0.24	0.30

Table 3. Results on weight gain and reproductive success in female elk on native and tame pastures in 1999 and 2000.

	Native Paddock		Tame Paddock	
	1999	2000	1999	2000
weight gain				
# cows	31	16	51	40
mean animal mass in August (kg)		248		238
mean animal mass in November (kg)		266		258
weight gain (kg)		18.0		20.0
% gain		7.3%		8.4%
Fecundity				
# cows with calf	11		29	
% cows with calf	79%		76%	
% twins	0%		3%	
% male calves	64%		70%	